



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/528,804

03/23/2005

Paul Cedric Campbell Hackwell

424662010500

9165

25227 7590 03/22/2010

MORRISON & FOERSTER LLP
1650 TYSONS BOULEVARD
SUITE 400
MCLEAN, VA 22102

EXAMINER

MULLER, BRYAN R

ART UNIT

PAPER NUMBER

3727

MAIL DATE

DELIVERY MODE

03/22/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/528,804	Applicant(s) HACKWELL ET AL.	
	Examiner BRYAN R. MULLER	Art Unit 3727	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 and 21-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 12-19 and 21-24 is/are rejected.
- 7) ☒ Claim(s) 10 and 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 June 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 19, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Melzner et al. (6,151,752) in view of Brennan (2,904,817).
3. In reference to claims 1 and 19, Melzner discloses a vacuum cleaner having a cleaning head (70), the head comprising a housing having a suction inlet (73), an agitator (75) for agitating a floor surface which is rotatably mounted in the housing, a first air turbine (3) driving the agitator, a turbine air inlet (12), separate from the suction inlet, admitting air to the first turbine, and a control (several embodiments of controls shown in Figs. 2 and 4-13) movable to control the amount of air admitted by the turbine air inlet to the first turbine (the lateral movement of the turbine of Melzner relative to the air inlet directly affects the amount of air admitted by the turbine inlet that passes through the turbine) to prevent rotation or reduce the speed of rotation of the agitator, the control being configured to obviously be responsive to a flow of air to or through the first turbine. However, Melzner fails to disclose that the turbine air inlet admits air separately from air admitted by the suction inlet. Brennan discloses a similar vacuum cleaning head having a brush driven by a turbine and teaches that it is desirable to

provide a separate air inlet (32/36) for the turbine that admits air separate from the suction air inlet so that air having dirt and debris will not pass through the turbine, which will prevent damage to the turbine and prevent the turbine from being jammed are prevented from rotation due to large debris or build-up of smaller debris. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the turbine inlet of Melzner as a separate air inlet that admits air separately from air admitted by the suction inlet, as taught by Brennan, to prevent damage and jamming of the turbine.

4. In reference to claims 23 and 24, Melzner further discloses that the control is configured to control rotation or reduce speed of the rotation of the agitator when the suction inlet is adjacent a surface being cleaned.

5. Claims 1-7, 13, 14 and 19-24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Worwag (5,416,948) in view of Mikami et al. (JP 05-317213).

6. In reference to claims 1 and 19, Worwag discloses a vacuum cleaner having a cleaning head, the head comprising a housing having a suction inlet (7), an agitator (13) for agitating a floor surface which is rotatably mounted in the housing, a first air turbine (19) driving the agitator, a turbine air inlet (75), separate from the suction inlet, admitting air separately from air admitted by the suction inlet to the first turbine, and a control (Figures 14 and 15) movable to control the amount of air admitted by the turbine air inlet to the first turbine that will prevent rotation or reduce the speed of rotation of the agitator. However, Worwag fails to disclose that the control is configured to be

responsive to the speed of rotation of the turbine or a flow of air to or through the first turbine. Mikami discloses a similar vacuum cleaner having an agitator that is driven by a turbine and Mikami teaches that it is desirable to provide a control to reduce or stop the rotation of the turbine and brush to reduce noise and stop rotation of the brush when the cleaner is on a surface not contacted by the brush, wherein the control is a flap (30) that may cut-off airflow to the turbine, similar to the flap (81) of Worwag, in response to the increased rotational brush speed (paragraphs 5 and 15 of machine translation indicate that the rotational speed of the turbine is detected by a control section to determine when to activate/deactivate the control flap) when the vacuum head is moved to a floor surface that provides minimal resistance to the brush. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the a similar structure of the Mikami control to the flap (81) of Worwag for controlling the airflow through the turbine to reduce speed or stop rotation of the brush in response to the increased speed of the turbine when the vacuum head is moved to a surface with lower resistance, as taught by Mikami, to reduce noise and stop rotation of the brush when not contacting the floor surface.

7. In reference to claims 2 and 21, the combination of Worwag and Mikami provides the control that will obviously be moveable between an open position (shown in phantom in Fig. 12 of Worwag), in which it admits air to the turbine, and a closed position (shown as solid in Fig. 12 of Worwag), in which it prevents air from reaching the first turbine.

8. In reference to claims 3 and 22, Mikami further discloses that the control is normally biased to the open position by spring (31). Therefore, it further would have been obvious to provide a similar spring to the control of Worwag to bias the control to the open position.

9. In reference to claim 4, Worwag and Mikami both disclose that it is desirable to provide the control to allow manual operation for a user to open or close the control (12a of Worwag; last line of paragraph 6 of machine translation of Mikami).

10. In reference to claim 5, the combination of Worwag and Mikami provides the control, as discussed supra, which comprises a movable part (flap 81 of Worwag or 30 of Mikami) having an interior volume which communicates with the main airflow path to the first turbine, the movable part being responsive to a pressure difference between the interior volume and ambient air. The movable part (81/30) has an interior volume in the same manner as the applicant's moving part (202/210) in that the moving part creates an interior volume between the moving part and the turbine (i.e., the moveable part does not actually have a volume inside the part, formed as a hollow part). Thus, the interior volume of the moving part of Worwag and Mikami is the volume between part (81/30) and the turbine, which clearly communicates with the main airflow to the first turbine and the Mikami further discloses that the movable part is responsive to a pressure difference between the interior volume and ambient air, detected by pressure sensor 40 (paragraph 14 of machine translation, lines 1-4).

11. In reference to claims 6 and 7, Worwag further discloses that the interior volume may communicate with the main airflow path to the first turbine via a restricted airflow path, through guiding air channel (69), which is restricted by an apertured plate (75).

12. In reference to claim 13, the control member (81/30) of Worwag and Mikami itself acts as a valve, by opening or closing suction inlet to the turbine compartment, for admitting air into the interior of the movable part so as to reopen the turbine air inlet.

13. In reference to claim 14, as discussed supra, relative to claim 2, Worwag discloses that the control (81) will stop airflow through the turbine chamber when in the closed position, thus it would have been obvious that the control either comprises a seal thereon or forms a seal when moved to the closed position. Therefore, it is obvious that the control member either comprises a seal or acts as a seal itself, thus the cleaning head of Worwag and Mikami obviously comprises a seal to seal the turbine inlet in the closed position.

14. In reference to claims 23 and 24, as discussed supra, the controls of Worwag and Mikami are both configured to control rotation or reduce speed of the rotation of the agitator when the suction inlet is adjacent the surface being cleaned.

15. Claims 8, 9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Worwag (5,416,948) in view of Mikami et al. (JP 05-317213) as applied to claims 1-8 and in view of Moren et al. (5,592,716).

16. In reference to claims 8 and 9, as discussed supra, Worwag discloses a vacuum cleaning tool for connection to a vacuum cleaner but fails to specifically disclose that the

vacuum cleaner comprises a device drawing air from the interior volume of the movable part or that the drawing device comprise a second turbine. The examiner hereby takes official notice that it is old and well known for vacuum cleaners to include an electric motor driven fan to provide suction to a cleaning tool connected thereto. Thus it would have been obvious that any vacuum cleaner would have some form of fan, driven by an electric motor to provide suction to the cleaning tool/head attached thereto. Further, Moren discloses a vacuum cleaner 10 for connection to a vacuum head (14) that is similar to the vacuum heads of Worwag and Mikami and Moren teaches that the main suction creating device for the vacuum cleaner may comprise a conventional impeller fan (29/29a), wherein an impeller is known to be a functional equivalent to a turbine. Thus, it further would have been obvious to one of ordinary skill in the art that the fan may also include an impeller, being known as a conventional suction fan in the art, wherein the impeller of the electric fan may be considered to be a second turbine.

17. In reference to claim 12, Moren further discloses another embodiment (Fig. 4), wherein the air drawing device (impeller/turbine 29a) is further provided with a venturi formed by portions 47 and 48 to increase cooling airflow through the motor (Col. 4, lines 18-30), which will reduce the possibility of overheating of the motor. Therefore, it further would have been obvious to provide the electric motor with a venturi as part of the air drawing device, which is upstream of the first turbine and is in communication with the interior volume of the movable part, as taught by Moren, to increase cooling airflow through the motor and reduce the possibility of overheating of the motor.

18. Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Worwag (5,416,948) in view of Mikami et al. (JP 05-317213) as applied to claim 1 and further in view of Kirby (2,648,396).

19. In reference to claim 15, the combination of Worwag and Mikami provides the vacuum cleaning head, as discussed supra, but Worwag and Mikami both fail to disclose that the vacuum head comprises a valve for admitting air to the cleaning head to reopen the turbine air inlet. Kirby discloses a vacuum cleaning head and teaches that it is desirable to provide the vacuum cleaning head with a pressure relief valve (87) to the cleaning head to reduce pressure within the head in the case the air intake(s) become clogged or sealed by a carpet or other obstructions. Thus, the valve will prevent extremely high vacuum conditions that may damage the motor of the vacuum or other parts of the vacuum head. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a similar pressure relief valve, as taught by Kirby, to the cleaning head of Worwag to prevent an extremely high vacuum condition, that may occur if the suction inlet becomes clogged or sealed, which will also cause the control (28) to close off the airflow through the turbine chamber, thus blocking air intake to the vacuum head. Further, a pressure relief valve would effectively relieve the increased vacuum condition that causes the control (28) to move to, and remain in, the closed position and would obviously allow air into the cleaning head and allow the control to reopen.

20. In reference to claims 16 and 17, Kirby further discloses that the pressure relief valve is positioned on a rear portion of the cleaning head, opposite the suction inlet,

which will clearly allow the valve to relieve pressure within the vacuum head if a blockage occurs anywhere between the suction inlet and the relief valve. Therefore, it further would have been obvious to provide the suction relief valve to the vacuum head of Worwag on a rear portion, opposite the suction inlet, which would also be downstream, of the first turbine and positioned on the opposite side of the housing to the control, since the control is positioned on the front of the housing.

21. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Worwag (5,416,948) in view of Mikami et al. (JP 05-317213) as applied to claim 1 and in view of Conrad (6,099,661).

22. In reference to claim 18, the combination of Worwag and Mikami provides the vacuum cleaning head, as discussed supra, but Worwag and Mikami fail to disclose a plurality of restricting devices arranged across "the discharge outlet". Conrad discloses a vacuum cleaner head having a suction inlet (40) and teaches that restricting devices (200 provide 2 restricting devices 272 in Fig. 10c) may be provided within the cleaning head (in an area considered to be equivalent to the applicant's disclosed "discharge outlet") and Conrad teaches that the restricting devices may be moved closer or further from the suction inlet to increase or decrease airflow through the suction inlet to accommodate for the absence of an agitating brush, when the agitation brush is deactivated. Therefore, it further would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a similar restricting device (200) optionally having a plurality of restricting devices (272) thereon, within the vacuum head

of Worwag (in a similar location considered to be “the discharge outlet”), as taught by Conrad, to increase the airflow through the suction inlet to accommodate for the absence of agitation provided by the rotating brush when the brush is deactivated by the control (28) being moved to the closed position.

Allowable Subject Matter

23. Claims 10 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

24. The following is an examiner’s statement of reasons for allowance: the prior art of record (considered as a whole) neither anticipates nor makes obvious a vacuum cleaning head having an air drawing device for drawing air from an interior volume of a movable part that controls the rotation of an agitator, wherein the air drawing device is in the form of a second turbine that forms part of the rear face of a first turbine that drives the agitator in combination with the rest of the limitations set forth in the independent claim.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

Response to Arguments

25. Applicant's arguments filed 12/9/2009, with respect to the Downham reference (as the primary and secondary reference) have been fully considered and are persuasive. The rejections of the claims under 35 U.S.C. 103(a) in view of Downham have been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Melzner, Brennan, Worwag and Mikami.

26. Applicant's arguments filed 12/9/2009 with respect to the rejections based on Melzner have been fully considered but they are not persuasive. The applicant argues that the Melzner reference controls the lateral position of the turbine and not the amount of air admitted by the turbine air inlet to the turbine. However, the lateral movement of the turbine of Melzner does directly affect the amount of air admitted by the turbine inlet that passes through the turbine. Thus, the control for the Melzner reference does read on the applicant's claimed control at least for claims 1, 19, 23 and 24.

Conclusion

27. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Berg et al. (5,088,149) discloses a vacuum cleaning head having similar structure and function as the applicant's claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRYAN R. MULLER whose telephone number is (571)272-4489. The examiner can normally be reached on Monday thru Friday 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Monica S. Carter can be reached on (571) 272-4475. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bryan R Muller/
Primary Examiner, Art Unit 3727
9/21/2009